Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matters of	
Service Rules for the 698-746, 747-762 and 777-792 MHz Bands	WT Docket No. 06-150
Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems	CC Docket No. 94-102
Section 68.4(a) of the Commission's Rules Governing Hearing Aid-Compatible Telephones	WT Docket No. 01-309
Biennial Regulatory Review – Amendment of Parts 1, 22, 24, 27, and 90 to Streamline and Harmonize Various Rules Affecting Wireless Radio Services	WT Docket No. 03-264
Former Nextel Communications, Inc. Upper 700 MHz Guard Band Licenses and Revisions to Part 27 of the Commission's Rules	WT Docket No. 06-169
Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band	PS Docket No. 06-229
Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010	WT Docket No. 96-86

COMMENTS OF M/A-COM, INC. ON THE FURTHER NOTICE OF PROPOSED RULEMAKING

To optimize use of the 700 MHz public safety spectrum, M/A-COM, Inc. ("M/A-COM"), believes that the Commission should adopt a band plan that (1) protects mission-critical narrowband communications from harmful interference and (2) maintains channel flexibility to

allow for maximum effective use of the spectrum and to allow for some regional use of the spectrum. M/A-COM urges the Commission to address these concerns as it contemplates action on the Further Notice of Proposed Rulemaking in the above-captioned proceedings.[1]

With respect to protecting narrowband communications, M/A-COM applauds the Commission's tentative conclusion to consolidate and relocate the narrowband public safety spectrum to the upper half of the 700 MHz public safety block.[2] Moreover, M/A-COM supports the proposals to "shift" the 700 MHz public safety band downward by 1 MHz, thereby creating a 1 MHz guard band between the relocated narrowband public safety spectrum and Block C, and relocating 1 MHz of the narrowband public safety spectrum to the channel 63/68 pair.[3] M/A-COM supports the Commission's proposal to protect the narrowband spectrum from the adjacent broadband block through a 1 MHz internal guard band. M/A-COM further recommends that the Commission retain the Part 27 rules concerning interference benchmarks and system architectures applicable to the 1 MHz of guard band spectrum between the relocated narrowband public safety spectrum and Block C to reduce the potential for interference.

To facilitate channel flexibility, the FCC should allocate the broadband public safety spectrum as a 5 MHz block to maximize the technology choices in this band and to allow for interoperability with the E block winner if the Commission adopts the plan proposed by Frontline.[4] In addition, to facilitate regional flexibility, the Commission should allow individual public safety agencies, subject to frequency coordination by the Regional Planning Committees

---

1 *See* Report and Order and Further Notice of Proposed Rulemaking, WT Docket Nos. 06-150, 01-309, 03-364, 06-169, 96-98, CC Docket No. 94-102, and PS Docket No. 06-229 (rel. April 27, 2007) ("FNPRM").

2 *Id.* ¶ 257.

3 *Id.* ¶ 196.

4 *See* Comments of Frontline Wireless, LLC, PS Docket No. 06-229 and WT Docket No. 96-86 (filed Feb. 26, 2007) ("Frontline Proposal").

("RPCs"), to license spectrum in the internal guard band with channel aggregation in 50kHz increments up to the complete guard band. Similarly, the Commission should increase flexibility by assigning statewide set-asides and interoperability channels in the 1 MHz block of relocated narrowband spectrum in the channel 63/68 pair.

M/A-COM is a leading technology developer and manufacturer of radio frequency, microwave, and millimeter wave semiconductors, components, and technologies serving the public safety and critical infrastructure, broadband, wireless data, aerospace, defense, and automotive market segments. M/A-COM has long been an industry leader in providing advanced two-way land mobile products and systems to the public safety community, including its recent introduction of cutting edge 6.25 kHz equivalent efficiency public safety solutions, poised for deployment at 700 MHz. M/A-COM is also a pioneer in the development of IP-based networks for private radio applications, and supplies industry-leading brands such as EDACS®, OpenSky®, NetworkFirst™, and ProVoice™. M/A-COM is a subsidiary of Tyco Electronics, one of the world's leading suppliers of electronic components. M/A-COM was an active member of the Public Safety Wireless Advisory Committee and the Public Safety National Coordination Committee and is an active member of the TR-8 Mobile and Personal Private Radio Committee of the Telecommunications Industry Association.

I. The Commission Must Protect Public Safety Narrowband Voice Communications From Harmful Interference

First and foremost, M/A-COM urges the Commission to protect the 700 MHz public safety narrowband channels from interference by broadband systems in the public safety band, as well as from interference by broadband systems in adjacent commercial spectrum. M/A-COM opposes any band plan that would threaten interference to mission-critical voice services, which will remain the cornerstone of public safety communications in the 700 MHz public safety

spectrum.[5]

M/A-COM supports the Commission's tentative conclusion to consolidate the 700 MHz public safety narrowband channels to provide one contiguous 6 MHz block of paired narrowband spectrum rather than splitting the narrowband allocation into two 3 MHz blocks.[6] This consolidation would halve the number of narrowband channel edges, thus significantly improving the ability of technology to provide interference protection in the narrowband spectrum.

Moreover, M/A-COM supports the proposal to "shift" the 700 MHz public safety band downward by 1 MHz "to remedy potential narrowband availability issues with Canada and Mexico" that would result from the narrowband consolidation and relocation.[7] M/A-COM also supports the corresponding relocation of current B Block licenses to the A Block, thereby establishing a paired 1 MHz B Block as a guard band above the consolidated narrowband spectrum, thus protecting vital narrowband communications from potential commercial broadband applications in the adjacent C Block spectrum.[8] M/A-COM takes no position on the geographic basis to be used in future auctions for any given block of commercial spectrum in the upper 700 MHz spectrum.[9]

M/A-COM's recommendation for the upper 700 MHz band plan is shown in Figure 1 below.

---

5 *See* Comments of M/A-COM, Inc., WT Docket No. 96-86, at 4 (filed June 6, 2006).

6 FNPRM ¶ 257.

7 *Id.* ¶ 196.

8 *Id.*

9 *See id.* ¶¶ 200–206.

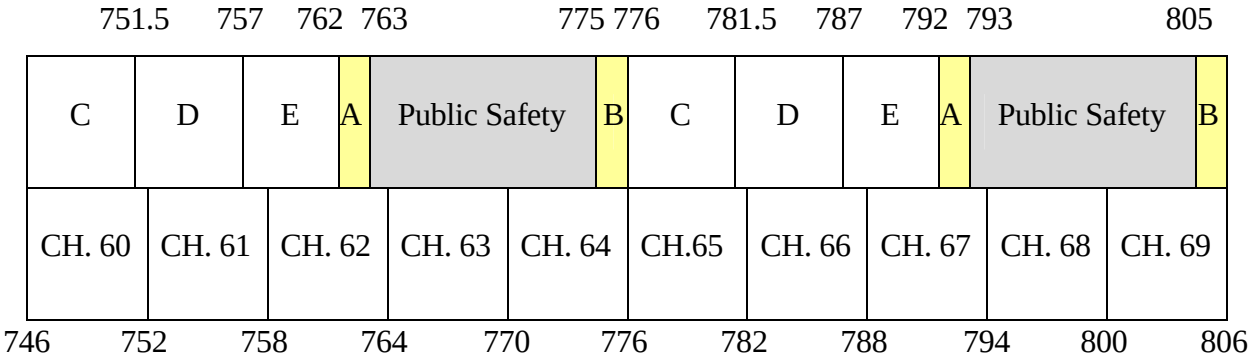

Figure 1: Proposed Reconfiguration of the Upper 700 MHz Band

The structure recommended by M/A-COM is the same structure as shown in Figures 9 and 10 of the FNPRM,[10] without regard to the geographic basis for the D Block auction.

M/A-COM believes any restructuring of the upper 700 MHz spectrum should do more, however, than simply relocate the lower 3 MHz of paired narrowband spectrum. M/A-COM believes the Commission should implement appropriate structural changes to maximize needed interference protections between potentially dissimilar technologies, given the interference that occurred in the 800 MHz spectrum. M/A-COM recognizes that this restructuring introduces a new guard band between the 700 MHz narrowband section and the 800 MHz "reconfigured" NPSPAC spectrum. Because of the absolute need to include a guard band at 775-776 MHz (lower B block) for interference protection between the narrowband portion of the public safety spectrum and the lower edge of the upper C Block spectrum where broadband communications may be commonplace, M/A-COM believes that the Commission should retain the guard band at 805-806 MHz (upper B block), since the B Block is paired spectrum. M/A-COM believes the relocation of the 1 MHz of paired spectrum indicated as the B Block in the above figure and retention of the Part 27 rules concerning interference benchmarks and system architectures applicable to this guard band spectrum will reduce the potential for interference to acceptable levels.

[10] *Id.* ¶¶ 201, 204.

II. Any Adopted Band Plan Should Support Channel Flexibility and Some Regional Licensing

M/A-COM believes that the Commission can and should achieve some measure of flexibility, while attempting to create a nationwide broadband network.

First, M/A-COM believes that the broadband spectrum should be allocated as a single 5 MHz block to maximize the use of 3G and 4G broadband technologies. This channel allocation will maximize the available broadband wireless technologies that can be used in the band. In addition, in the event that some form of the Frontline Proposal is implemented, the allocation for the use of a single interoperable network for both the E block and the public safety spectrum through the use of commensurate channel allocations.

Second, the Commission should allow public safety agencies to obtain individual licenses for use in the proposed internal guard band. This will allow flexibility to account for local and regional differences. When combined with RPC frequency coordination and interference protections, this should pose no significant interference threat.

Third, the Commission should assign the vast majority of statewide set-aside channels and a handful of interoperability channels in the 1 MHz of spectrum that will overlap channels 63/68 along the Canadian and Mexican borders following the public safety spectrum down "shift." This will allow border states, which otherwise would not have access to any 700 MHz narrowband spectrum, to use this spectrum for statewide networks or local public safety agencies, at their own choosing.

Fourth, to the extent that the Commission adopts some form of the Frontline Proposal to create a dual-use, single licensee, nationwide broadband network,[11] public safety agencies—especially those in rural areas—should have the flexibility to alleviate potential coverage gaps

[11] FNPRM ¶¶ 268–74.

that may result from proposed build out requirements based on population coverage.[12] The Frontline Proposal measures build out benchmarks by *population* coverage, whereas typical public safety wireless networks are built out to *geographic* coverage requirements—with new systems generally meeting a 95-percent area coverage minimum standard. Frontline's proposed build out to cover 95 to 98 percent of the population[13] may leave coverage gaps that pose operational problems to public safety in parts of the country. To help alleviate these gaps, M/A-COM recommends that the Commission allow public safety agencies, subject to RPC frequency coordination and interference management, to license private systems in the internal guard band with channel aggregation in 50 kHz increments up to the complete guard band.

III. The Commission Should Adopt Additional Measures for the Reconfigured Upper 700 MHz Band Public Safety Spectrum

Finally, in Figure 2 below, M/A-COM provides a detailed plan for the reconfigured upper 700 MHz public safety spectrum, which it believes will provide the benefits discussed above, namely:

- Contiguous narrowband and broadband segments
- Availability of an internal guard band between the narrowband and broadband segments
- Possibility of the internal guard band utilization on an individually licensed basis subject to RPC management and control
- Allocation of 5MHz blocks which will accommodate multiple 4G technology candidates and allow for interoperability with the E block if that plan is chosen
- Placement of some narrowband channels in the channel 63/68 spectrum alleviating international cross border issues

---

12 *Id.* ¶ 274.

13 *Id.*

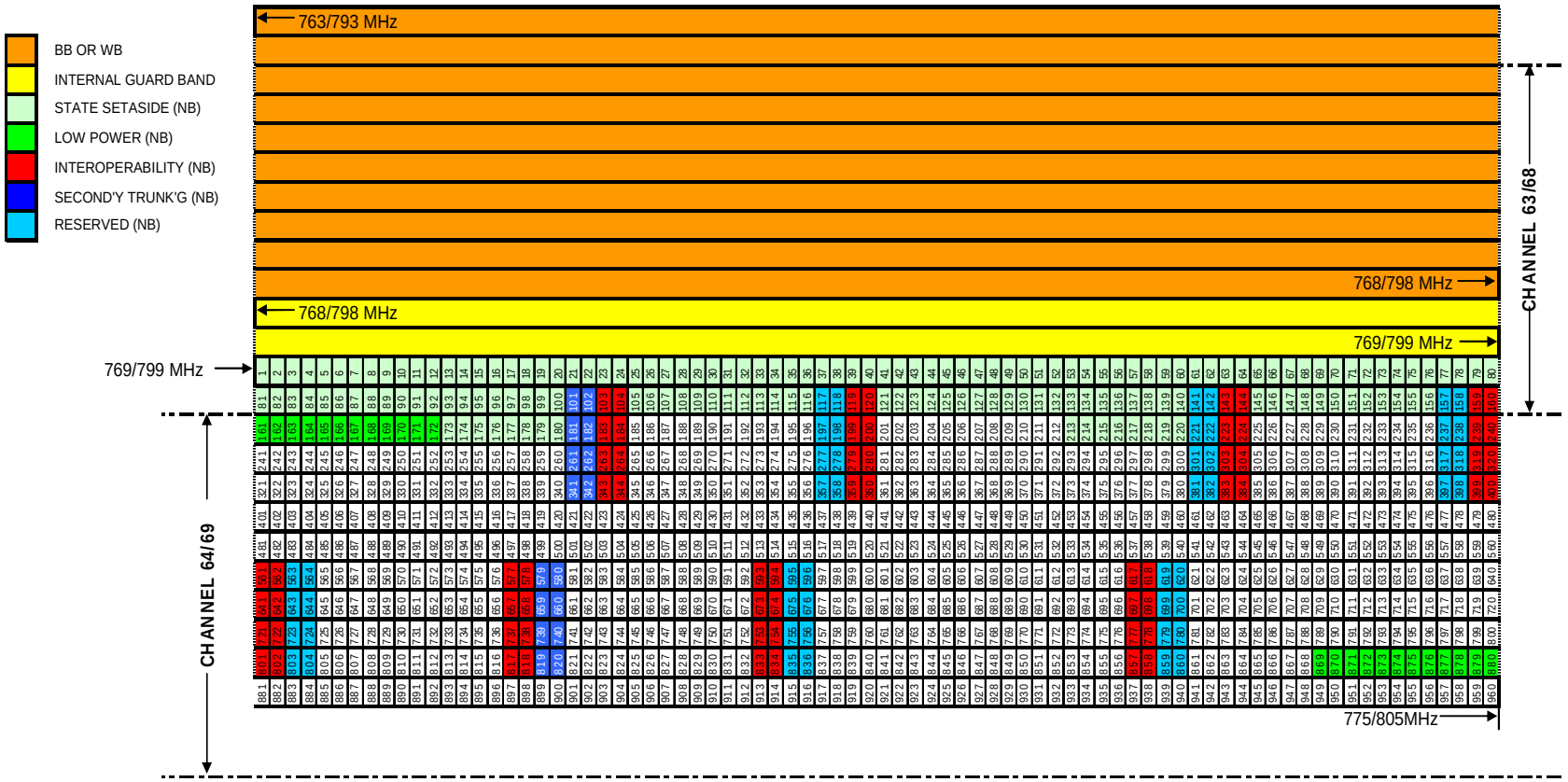

Figure 2: Proposed Detailed Reconfiguration of the 700 MHz Public Safety Band

CONCLUSION

For the reasons stated above, M/A-COM urges the Commission to adopt a 700 MHz public safety spectrum band plan that protects mission-critical narrowband communications from harmful interference and maintains channel flexibility to allow for maximum effective use of the spectrum and to allow for some regional use of the spectrum

Respectfully submitted,

M/A-COM, INC.

Dr. Ernest Hofmeister
Technology Fellow
Wireless Systems Business Unit
M/A-COM, INC.
221 Jefferson Ridge Parkway
Lynchburg, Virginia 24551
+1 434 455 9555 tel

Kent D. Bressie
Patricia J. Paoletta
Christopher Nierman
HARRIS, WILTSHIRE & GRANNIS LLP
1200 18th Street, N.W., Suite 1200
Washington, D.C. 20036-2560
+1 202 730 1337 tel

Counsel for M/A-COM, Inc.

23 May 2007